



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/072,573 | 02/08/2002 | Manabu Kitamura | 16869S-042600US | 1947 |

20350 7590 04/05/2005

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

| |
|----------|
| EXAMINER |
|----------|

CLARK, ISAAC R

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2154

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,573

Applicant(s)

KITAMURA ET AL.

Examiner

Isaac R Clark

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>02/08/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-7 are presented for examination.

Priority

2. The applicant claims foreign priority under 35 USC § 119(a)-(d) based on Application No. 2001-341361 filed on 11/07/2001 filed in Japan.
3. The effective filing date for the subject matter in the pending claims in this application is 02/08/2002.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "System and method for displaying storage system topology".

Drawings

5. The Examiner contends that the drawings submitted on 02/08/2002 are acceptable for examination proceedings.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Arquie et al. (US 6,636,239 B1, "Arquie").

8. As per claim 1, Arquie teaches a computer system configured of a plurality of computers 322, 340 (Fig. 3), a plurality of storage subsystems 336, 338, 350 (col. 3, lines 19-21), and a storage management computer 313 (Fig. 3, col. 3, lines 47-49), comprising: said plurality of computers having means for transmitting an input/output request and input/output data between said computers and said storage subsystems through at least one of a first physical communication medium and a second physical communication medium, both of which interconnect said computers with said storage subsystems (Fig. 3, showing separate network connections to storage subsystems switch group 1 and switch group 2); and said storage management computer having, a display apparatus 313 (Fig. 3) being connected with said storage subsystems through said first and second physical communication mediums, and means for executing one of a first display method of displaying said computers and said storage subsystems interconnected through said first physical communication medium and their connecting relation (topology) on said display apparatus, a second display method of displaying said computers and said storage subsystems interconnected through said second physical communication medium and their connecting relation (topology), and a method of executing said first and second display methods at a time (col. 4, lines 1-55; display shows topology of network connections, user can select to display connections between selected chosen source and destination nodes and path is highlighted).

9. As per claim 6, claim 6 describes the method carried out by the system recited in claim 1 and is rejected for the same reasons as claim 1.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 2, 3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arquie et al. (US 6,636,239 B1, "Arquie") in view of in view of Padovano (US 6,606,690) and Baldwin et al. (US 2003/0167327 A1, "Baldwin").

13. As per claim 2, Arquie does not explicitly teach the computer system as claimed in claim 1, wherein said plurality of storage subsystems include first storage devices to be accessed by said plurality of computers according to a first input/output access protocol and second storage devices to be accessed by said plurality of computers

according to a second input/output access protocol, and said storage management computer includes a third display means for displaying said computers, said first storage devices and their topology, a fourth display means for displaying said computers, said second storage devices and their topology, and means for allowing a user to select at least one of said third display means and fourth display means.

14. Padova teaches the plurality of storage subsystems including first storage devices to be accessed by said plurality of computers according to a first input/output access protocol and second storage devices to be accessed by said plurality of computers according to a second input/output access protocol (Fig. 7, col. 11, lines 31-37; col. 15, lines 33-35; NAS systems, inherently accessed by file access protocol connected by Ethernet) and a second communication medium which is Fibre channel (SAN systems, inherently block access protocol systems, connected by Fibre Channel; col. 11, lines 53-59; col. 14, lines 50-54).

15. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Arquie and Padova because they both deal with display in storage subsystems connected to a plurality of computers. Furthermore, the teaching of Padova to connect a first set of storage subsystems by Ethernet and a second set of storage subsystem via Fibre Channel would increase system efficiency over diverse system operations by supporting file access operations over NAS which provides efficient access to storage from diverse client operating systems (col. 3, lines 24-26, col. 1, lines 29-35) and supporting operations like database

Art Unit: 2154

access which are more efficiently supported by SAN which supports allowing block access I/O.

16. Baldwin teaches a selectable display for showing portions of a storage system based on selected attributes of the system (Abstract, Paragraphs 0022, 0026)

17. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Arquie and Baldwin to selectively display portions of a storage subsystem having the attribute of using a particular input/output protocol because they both with a storage managing computer in a storage system for displaying the topology of the system. Furthermore, the teaching of Baldwin to selectively display system components of interest would increase the efficiency of managing the system using the display by removing clutter allowing the user to focus attention on particular subsystems of interest.

18. As per claim 3, Arquie and Padovano as applied to claim 2 teach the computer system as claimed in claim 2, wherein said first input/output access protocol is a fixed-length block access protocol and said second access protocol is a file access protocol (Padovano, Fig. 7; SAN inherently block access protocol and NAS inherently uses file access protocol).

19. As per claim 7, claim 7 describes the method carried out by the system recited in claim 2 and is rejected for the same reasons as claim 2.

20. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arquie et al. (US 6,636,239 B1, "Arquie") in view of Padovano (US 6,606,690).

Art Unit: 2154

21. As per claim 4, Arquie does not explicitly teach wherein said first physical communication medium is the Ethernet and said second physical communication medium is the Fibre channel.

22. Padovano teaches a storage system including storage subsystems connected via a first communication medium which is Ethernet (Fig. 7, col. 11, lines 31-37; col. 15, lines 33-35; NAS systems connected by Ethernet) and a second communication medium which is Fibre channel (SAN systems connected by Fibre Channel; col. 11, lines 53-59; col. 14, lines 50-54).

23. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Arquie and Padovano because they both deal with display systems in storage subsystems connected to a plurality of computers. Furthermore, the teaching of Padovano to connect a first set of storage subsystems by Ethernet and a second set of storage subsystem via Fibre Channel would increase system efficiency over diverse system operations by supporting file access operations over NAS which provides efficient access to storage from diverse client operating systems (col. 3, lines 24-26, col. 1, lines 29-35) and supporting operations like database access which are more efficiently supported by SAN which supports allowing block access I/O.

24. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arquie Padovano and Baldwin as applied to claim 3 above and further in view of Yamamoto (US 6,779,063 B2).

Art Unit: 2154

25. As per claim 5, Arquie does not teach wherein at least one of said second storage devices is a storage device to be accessed by one of said computers according to said first input/output access protocol.

26. Yamamoto teaches wherein at least one of the storage devices accessed by file access I/O protocol is also accessed by a block access protocol (col. 1, lines 65-67; col. 2, lines 6-15).

27. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Arquie and Yamamoto because they both deal with access to data on a storage subsystem. Furthermore, the teaching of Yamamoto to provide both access to a data storage element by both file access and block access I/O protocol will optimizing operations requiring block access will still allowing operation via NFS or CIFS protocols which provide file system access from clients operating from diverse operating systems (col. 2, lines 24-30 and lines 62-67).

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents and publications are cited to further show the state of the art with respect to "Storage management computer".

- i. US 6,868,417 B2 Kazar et al. Combined block level and file level access using the same storage server
- ii. US 6,839,747 B1 Blumenau et al. User interface for managing storage system

- iii. US 6,225,999 B1 Jain et al. Customizable network management display
- iv. US 6,538,669 B1 Lagueux et al. GUI for configuring a storage system

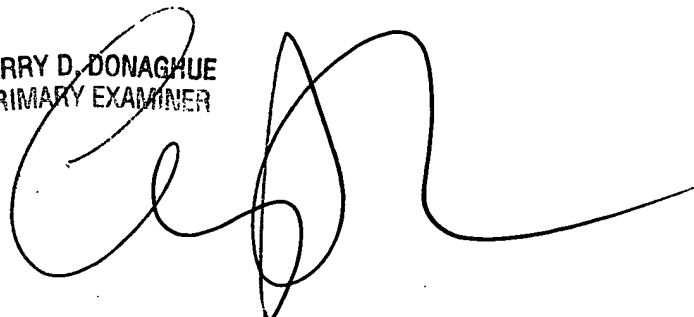
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac R Clark whose telephone number is (571)272-3961. The examiner can normally be reached on Monday-Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (571)272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IRC

LARRY D. DONAGHUE
PRIMARY EXAMINER

A large, stylized handwritten signature in black ink, likely belonging to Larry D. Donaghue, the Primary Examiner.